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ABSTRACT

The three papers contained in this document cover particular issues in diverse languages. The first concerns the distribution and function of postpositions in Awutu, an African language; the main function of such morphemes is marking case. The second paper discusses the unusual phonology system of Wichita; this American Indian language is characterized by a three-vowel system that has only height contrasts and a phonemic consonant system with neither labials nor nasals. The final paper discusses the Japanese case markers "wa" and "ga" within a framework similar to Fillmore's case grammar; the author argues on both semantic and syntactic grounds that wa- and ga-noun phrases are transformationally derived from conjoined sentences. (VM)

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POSTPOSITIONS IN AWUTU

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ABSTRACT

The distribution and function of postpositions in Awutu, a language from the Guang subgroup of Kwa languages are described. Similar morpheme classes, sometimes called locative nouns, exist in other Kwa languages.

The main function of these morphemes is that of marker of case. All of the postpositions can function as markers of the locative case. One postposition, ɔ̀, can also function as a marker of the "topical" case.

1. Introduction. The aim of this paper is to describe the postpositions in Awutu,[1] a language belonging to the southern branch of the Guang group of Kwa languages.[2]

Such morphemes exist in other Kwa languages, and in the older grammars they were dealt with rather extensively--though not always with sufficient clarity. In Twi, Christaller (1875) described them as a subclass of substantives, and they were called "nouns of place and relation serving as adverbs and postpositions." A similar approach for Ewe is to be found in Westerman (1930). The approach has been carried over in contemporary works as well.[3]

The postpositions we are concerned with are sɔ̀, tɔ̀, and ɔ̀. Although they are etymologically related to the nouns meaning "upper part", "inside, inner part", and most probably "body", they have to be considered as a separate class of morphemes. While nouns having the above stems may appear with or without prefix, i.e. ésɔ̀, étɔ̀, the postpositions never do. Those three morphemes are mutually exclusive.[4]

2. Distribution of postpositions. All of the three postpositions may follow a. direct object, b. adverb of place, or time, c. after subject of quasi-passive sentence, d. verb.

2.1 Following direct object. The type of sentence in which a postposition follows a direct object in the S.V.O. structure is common to a number of Kwa languages.

In this type of sentence, the postposition specifies which part of an object undergoes the action. By part is meant one of the elements in the following spatial setting: top, inside, outside, of the object concerned. Consider the following examples:

(1) mɔ̀bía mɔ̀nǎbí tɔ̀ ɛ̀dɛ́

lit. 'he broke his leg in yesterday' 'he broke his leg yesterday'.

(2) mɔ̀fó pápáhūè ò

'he/she washed the towel'[5]

(3) mɔ̀búkî kɛ́ntɛ́ɲɛ̀ sò

'he opened the basket'

(4) àjánɛ̀ hwírɛ̀m mɔ̀ tɔ̀ bò mɔ̀kɔ̀só

'the arrow pierced him through his back'

Whenever a postposition occurs in final position of the S.V.O. sentence its semantical load is rather light, but consider the following examples:

(5) mɔ̀gólî mîm̀fǎnɔ̀ɛ̀ ò

'he cracked my eggs' (action concerns only the surface of the object), but:

(6) mɔ̀gólî mîm̀fǎnɔ̀ɛ̀

'he broke my eggs (completely)'

Not always, however, does the presence of a postposition indicate that part of the object being affected by the action. Consider the following examples:

(7) mɔ̀ɛ́fɔ̀ gárîè sò

'she is sieving gari'

(8) fɛ́ɛ́ mî tɔ̀

'leave me, let me alone'

(9) mîláádɔ̀ ǹcúè sò ná mɔ̀

'I will boil water for him'

In example (8), the postposition tɔ̀ seems to be the only postposition allowed by the verb fe, and quite possibly it is obligatory with this verb

if the meaning is that of 'release', 'drop', etc.

2.2 Following adverb of place or time. Another major occurrence of post-positions is with adverbial phrases. The adverbial phrase might consist of either adverb of place or adverb of time.

There are two main environments for the occurrence of an adverbial phrase. The first one is with an intransitive verb, which might be a stative verb or a verb of motion.

Example:

(10) mɔ̀jírɛ̀ èkúlɛ́ ò

'he is standing by the door'

(11) àníyɔ̀ áwǐko sɔ̀

'we went to a certain house'

(12) mɔ̀yɔ̀ pábíè sɔ̀

'he went down the road'

(13) nɛ́ àkùráà cú àlɔ̀bíè tɔ̀

'and the mouse came out of the drinking pot'

(14) mɔ̀án!cínà mɔ̀sé sɔ̀[6]

'she has sat on her father's lap'

The second environment is where the verb is transitive with the object expressed. In such sentences the adverbial phrase must be introduced by the copulative verb bo 'to be', or by one of its equivalents. Compare sentences (15) and (16), which are taken from the same text:

(15) ɔ̀hǐ́è mɔ́ɔ́!kū́ pábí ò

'the man is digging by the roadside'

(16) ɔ́hǐ́kɔ̀ šámɔ̀ bò pábíè sɔ̀

'a certain man met him on the road'

The following are further examples for insertion of the copulative verb:

(17) mɔ́pá ḿfɔ̀ bɔ̀ mɔ́wíre sɔ̀

'he put a pomade on his skin'

(18) mɔ́ja càlé bɔ̀ m̀kɔ̀tɔ̀kú tɔ̀

'he took cola nuts from his pocket'

(19) àmɔ̀hū̀ éyɪ̀bíkɔ̀ kà pábíè sɔ̀

'they saw a certain tree lying on the road'

The copulative verb bo is introduced when the adverb of place is further modified by another locative phrase, e.g.

(20) mɔ̀bɔ̀ áwɪ̀kɔ̀ sɔ̀ bɔ̀ lɔ́lɛ̀ pábí ɔ̀

'he is in a certain house on the lorry road (main street in Awutu)'

When the direct object is shifted before the verb, then the verb bo is deleted, e.g.

(21) ó nɛ̀ m̀fánɔ̀̀ɛ̀ tɛ́a jáà sɔ̀

lit. 'you and eggs put fire on' 'put the eggs on the fire'

(22) mɔ̀ámplɛ̀ á nɛ̀ tū jáà tɔ̀

lit. 'when he agreed one and (it) put into the fire'

(23) bɛ́ ó nɛ̀ mɔ̀ m̀pɔ̀ éyɪ̀bí ɔ̀

lit. 'then you with it hang tree on' 'then you hang it on the tree' (refers to an animate object)

(24) mɔ̀ámbà pɛ̀ nɛ́ àcù ɔ̀šánɪ́è tù ádákà tɔ̀

'as soon as he came one took the person put (him) into the coffin'

Whenever the head of an adverbial phrase is further modified, the postpostion occurs after the last modifier, e.g.

(25) àmɔ̀cínà mìwófà áwì dàdàbíè sɔ̀

'they live in my undle's old house'

(26) àmɔ̀bɛ́tɛ̀ bɔ̀ sɔ̃́mpɔ̀ ébíbíè tɔ̀ mídí éhɛ́ɛ̀ tɔ̀

'they took it from the black pot (and) not from the red one'

Note that in the last example,(observe)the deletion of head in the second adverbial phrase, just as in English.

Postpositions mark the adverb of place, even when it is moved for emphasis to the sentence initial position, e.g.

(27) áwì éfúfúrì mɔ̀ sɔ̀ nɛ́ ɔ̀láácínà

'it is in this white house that you will be living'

This sentence is derived through simple transformation from the sentence

ɔ̀láácínà áwì éfúfúrì mɔ̀ sɔ̀

'you will live in this white house'

2.3 <u>After subject of a quasi-passive sentence</u>. Postpositions may also occur after the subjects of quasi-passive sentences in Awutu, which may be derived from sentences with the following structure:

NP_1 Vtrans NP_2

in which NP_1 and NP_2 are, respectively, subject and object. Now, to obtain the only possible passive sentence, we must delete NP_1, i.e. the subject, and move NP_2 before the verb. The verb in such sentences is in the perfective aspect. Through such transformations are derived the following sentences:

(28) m̀fɑ̃́nɔ̃́ɛ́ ɔ̀ ŋgɔ́lì

'the eggs are cracked' -- which is derived from

áŋ!gɔ́lì m̀fɑ̃́nɔ̃̀ɛ̀ ɔ̀

'one cracked the eggs'

(29) ònîntírî ò m̀bɔ̀ fɛ́ɔ̀

'your head has become nice' (said after a haircut) -- which may be derived from

ámbɔ̀ ònîntírî ò fɛ́ò

'one made your head nice'

(30) mɔ̀séyɛ̀ mîhɛ́bí ò m̀bɔ̀ fɛ́ò ɛ́ɛ́

'his father said: hey, my son has become nice!'

Postpositions occur also after the subject of a nominal sentence, i.e. a sentence with nominal or adjectival predicate which, in Awutu, may have the copulative verb bo, e.g.

(31) àlé áwîè sò bò fádíí

'this house is clean'

2.4 Following verb. Sentences with postpositions occurring after the verb are derived from several underlying structures. I shall deal first with the type of sentence derived from the two previous major subdivisions, i.e. sentences with a postposition following the direct object and, second, postposition following the adverb of place. From these structures, through deletion of the direct object or of the adverbial phrase, we obtain a structure in which the postposition follows the verb directly.

NP_1 Vtr NP_2 Postp.

1 2 3 4 ⟶ 1 2 4

and NP_1 V Adv. place Postp.

1 2 3 4 ⟶ 1 2 4

Sentences having the structure on the right side of the formula occur only if the deleted object or adverbial phrase was mentioned previously in the discourse or in the same (usually) conjunctive sentence.

(32) mɔ̀ nɛ̀ éwúrìè bóà kɛ́ntɛ́ŋ àyínsè né mɔ̀gùá sɔ̀

'he gathered the bones under the basket and covered (it)'

This sentence is derived from the two sentences:

(33) mɔ̀ nɛ̀ éwúrìè bóà kɛ́ntɛ́ŋ àyínsè

'he gathered the bones under the basket', and

(34) mɔ̀ gùá kɛ́ntɛ́ŋɛ̀ sɔ̀

'he covered the basket'

The following sentence is an example of the deletion of an adverbial phrase:

(35) ébɔ̃ ágbò kɔ̀ ká ńtʔá né mɔ̀ cú àtɔ̀bíè nɛ́ mɔ̀nɛ̀ né wùrá tɔ̀

'a certain big hole was there and he picked up the child and put him in'

The following examples illustrate when the direct object was mentioned previously in the discourse.

(36) mɔ̀cá sɔ̀ ńnɛ̀

'he stepped on (it) today'

(37) mɔ̀yɛ̀ ó nɛ̀ wíré klɛ́ ò kɛ̀ mìabɛ́tɛ̀

'he said: wrap it in the paper and I will take it'

Deletion of the direct object and/or of the noun in the adverbial phrase is merely a surface phenomenon. This rule works only when the direct object or a nominal in the adverbial phrase is an inanimate noun. In the underlying structure the noun is replaced by an object or anaphoric pronoun. For inanimate nouns, however, no object or anaphoric pronoun can follow the verb, whereas they can do so for animate nouns. Compare the phrase fɛ́ɛ́ tɔ̀ 'leave it', from the following example:

(38) ɔ̀ámá èwónɪ̀è fɛ́ɛ́ tɔ̀ ná ɔ̀kɛ́

'if you do not have strength leave it for tomorrow'

with sentence (8) féé mì tɔ̀ 'leave me'

Most sentences in which a postposition follows the verb directly can be accounted for as having an underlying structure V Pro. Postp. In only a few cases does it appear more reasonable to treat a postposition as a particle which, together with the preceding verb, constitutes one lexical item, e.g.

(39) mɔ̀ níntírìè túá sò

'its head hangs down' (lit. on)

(40) ébè ntékétɔ̀ ǹjá

'the time passed quickly'

3. The locative function of postpositions.

In the hitherto described environments, postpositions have had the locative function. Within this function, however, there was a difference, depending upon whether the postpostion occurred after the adverbial phrase or whether it appeared after the direct object of the sentence.

If the postposition occurs after the direct object, it simply specifies which part of the object is involved. It may be contrasted with the sentence in which there is no postposition following an object, meaning that the whole object is involved. Compare sentences (5) and (6) ('he cracked my eggs' vs. 'he broke my eggs completely').

The use of postpositions after a direct object is sometimes redundant. Compare sentence (41) (with postposition) and sentence (42) (without postposition), both meaning 'he cut a piece of bread':

(41) mɔ̀tɛ̀ blɔ̀dɔ́ɛ̀ ò ḿplɔ́bí

(42) mɔ̀tɛ̀ blɔ̀dɔ́ɛ̀ m̀plɔ́bí

While occurring with a Noun Phrase following a verb of motion or state, it is the adverbial marker which, together with the preceding noun, forms the adverb of place. The postposition adds the feature [+ locative] to any noun preceding it. Note that place names (nouns meaning "here", "there" and for some reason, the noun "home") do not take postpositions in the locative function, e.g.

(43) ámánfìè mì bò ŋklá

'last year I spent in Accra'

(44) èbóólè bɛ́ òbácínà šìmpà

'it is better for **you** to live in Winneba'

(45) hɛ́è bɛ́ **mɔ̀** bò ǹtʀá ńtɔ̀

'find out if he is there'

(46) òšì mɛ́ nɛ́ ócù à ƙusò yɔ́ šìmpa

'how do you get from Awutu to Winneba?'

(47) mɔ̀cɔ̀ bò mìhɛ́è ɛ́dɛ̀

'he passed by my home yesterday'

A similar situation exists in Swahili, in which the locative suffix -ni does not follow the place of nouns (cf. Gregersen 1967:33).

4. 'Topical' function of postposition.

One major function of the postposition has been excluded from the preceding analysis. That function consists of marking the object of verbs for which we may posit a feature [+ mental activity], as opposed to all preceding verbs which had the feature [+ physical]. The verbs in question are those meaning "inform", "quarrel", "think", "describe", "count", "forget", "discuss", "ask", etc.

Only the postposition ò is used in this function. The rules for

syntactic distribution are the same as for postpositions in the locative function, especially if we treat the adverbial clause as the "directional object" of the verb of motion.

Examples for when there is only one object following the verb:

(48) àmɜ̀tálɛ̀ àní ò m̀bémbɛ̀mfá

'they talk about us now'

(50) m̀bémbɛ̀mfà mìejwɛ̀ɲ mìsùkù ò

'now I am thinking about my school'

If there is a direct object of the verb, then the postpositional object is introduced by the copulative verb, just as for postpositions in the locative function, e.g.

(51) èbò tɛ̀ óáyɛ̀ òsɛ̀ bò jwéè ò

'you have to inform your father about the marriage'

(52) olaaca bisa mi asɔ bo awutu atale o e

'you will write to ask me questions about Awutu language'

(Since this is a line from a letter by Mr. Paul K. Orleanspobee, there is no tone marking.)

With some verbs the second object may be introduced by a serial verbal construction, e.g.

(53) mɔ̀kàká mɔ̀má ò ná né

lit. 'he showed his town give her' 'he described his town to her'

This construction is not peculiar to use of the postposition; in fact, it is the only construction used for rendering the benefactive or dative case. Compare it with examples (9) and (54):

(54) ó nɛ̀ àtàlé ébíbìè ná mì

'give me the black dress'

Note that in this function, i.e., after verbs having the feature [+ mental], place names are followed by the postposition just as are any other nouns.

(55) àmɔ̀ɛ́ɛ́tálè bɔ̀ kàsúwá ɔ̀ or àmɔ̀ɛ́ɛ́tálè kàsúwá ɔ̀

'they are talking about Kasuwa' (market place and village 8 miles east of Awutu, inhabited mainly by Hausas, hence its Hausa name)

Whenever a noun is qualified, the postposition occurs after the last qualifier, e.g.

(56) mɔ̀ jwɛ̃̀ŋ mɔ̀ àbùsʉ̃́ fɔ̀ fùù ɔ̀

'he thinks about all his family'

Conditions for occurrence of the postposition directly after a verb are the same as for postpositions in the locative function. An object pronoun in underlying structure should be postulated in order to account for the occurrence of the postposition ɔ̀ after the verb.

(57) áwì mɔ̀ dì tɛ̀ mɪ́átálè ɔ̀ è

'this is the house that I was talking about'

(58) èpí tɛ̀ ákɔ̀ àtɔ̀ bɔ̀ sɔ̀ è àmɔ̀ásɛ́mpɛ́ ɔ̀

'they forgot about the grinding stone'; lit. 'the stone on which one grinds they forgot about (it)'

5. Place of postpositions in Awutu grammar. Fillmore (1968) treats prepositions as the surface realization of the underlying element "case". Case identifies the underlying syntactic-semantic relationship.

It seems possible to treat postpositions in Awutu as the surface realization of two underlying cases, viz. of the locative case and of a case which, for the lack of a better term, is tentatively called "topical", since it designates the topic of a verb having the feature [+ mental].

The locative case designates the object of a directional or stative verb (Lyons 1968).

As the marker of locative case, the postposition is obligatory unless it is replaced by a noun assuming the function of the postposition.[7] As markers of locative case, postpositions do not occur with nouns already having the feature [+ locative]. As marker of the "topical" case (note that a statement in terms of the direct or indirect object would be less precise), the postposition is obligatory as well, and no other noun or other postposition can be substituted for it. Moreover, in contrast to the markers of locative case, the marker of the "topical" case is semantically empty.

Treating postpositions as markers of case form provides the rule for their usage as well. Whenever the "stative", "directional", or [+ mental] verb is chosen, one of the postpositions must be used. However, sentences (1), (2), (3), (4), (5) exemplify the use of postpositions with the direct object of a transitive verb. It is still a locative function, but use of the postposition is optional, as shown by (6) vs. (5).

As a solution to those structures in which a postposition with the locative meaning may occur after a direct object, the following observation should be made. When there is no postposition following a direct object, the object as a whole is concerned; when the postposition does occur there, however, the part of the object involved is specified.

In such instances the selection of postpositions is usually governed by the verb, e.g. the verb fo 'wash', which requires the postposition ò, with implication that the action applies to the surface of the object, e.g.

(59) fò mì m̀bàmá ò

'wash my cloth'

The verb fe 'to release' occurs with the postpositions tɔ̀, e.g. (8), (30); and the verb klɛ 'to wrap' occurs only with the postposition ò, e.g.

(60) mɔ̀ nɛ̀ wíré klɛ̀ ākùtú ò

'he wrapped the oranges with the paper'

Compare also example (37).

6. Selection of postpositions. Three postpositions may occur as markers of the locative case: sò, tɔ̀, ò. They have the same function, but different meanings. It has been shown that occurrence of the postposition depends upon choice of the verb. But the choice of which postposition depends upon several factors.

Since postpositions in the locative function are semantically non-empty, choice among them is essentially arbitrary. There are, nevertheless, examples in which selection of the postposition is governed by the verb or by a nominal phrase preceding the postposition.

For selection governed by a nominal phrase, compare the two following sentences with the same verb kā 'to lie'.

(61) àkùtú kā́ òplɔ̀è sò

lit. 'an orange lies on the table' 'there is an orange on the table'

(62) èbámì ǹkā́ní mìàlɔ̀bíè ò

lit. 'cracks lie on my drinking pot' 'my drinking pot is cracked'

Note that in sentence 62 the verb kā has "plural form".

For selection of the postposition governed rather by a verb, compare sentence (19) with sentence (63):

(63) àlé éyì mɔ̀ bíà èpábíè tɔ̀ ɲànkā́ mɔ̀ fà

'this tree lay across the road only in the morning'

I do not pretend to have accounted for all occurrences of postpositions in the Awutu language in this paper. There are a few examples of postpositions as parts of words in some ossified constructions, e.g. m̀bíàsòábí 'divisional chiefs', (lit. 'stools - on - people'). Another example is of postpositions in some genitival constructions, e.g. àmɔ̀ tɔ̀ ɔ̀sɔ̀nkɔ́fà 'each of them', etc. The above constructions, however, are analyzed as various types of nominal phrases.

N O T E S

1. This paper is based on material I collected during the summer of 1970, at Awutu, 23 miles west of Accra.

I wish to thank the West African Linguistic Society for the grant-in-aid which made my trip possible. I am also deeply grateful to my friends, Mr. F. B. Armah-Agyeman and Paul Kwao Orleanspobee, for the time and energy they devoted to helping me with my work.

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2. In Stewart (1970) Awutu is classified as a member of the Awuto-Larteh subgroup of Guang (Guan) which, in turn, is the third major subdivision within Volta-Comoe languages (Greenberg's Akan).

3. For a similar approach, see Welmers (1946) and Redden et al (1963). This approach may be justified on etymological grounds, since all of those postpositions are related to nouns meaning "top", "inside", "back", "underpart", etc.

4. Cognates of the first two of them are described in Painter's (1970) book on Gonja phonology. The grammatical description is set within the framework of the tagmemic grammar, and the "placers" so and to are said to belong to various slots within the sentence. One of them is the adverbial slot. Remarkably, they are not considered as nouns by Painter.

5. Since there is no gender distinction in Awutu, the examples that follow in 3rd p.sg. will be translated as 'he'.

Unless there is a semantical load linked with a postposition, no literal translation is provided.

6. In accord with current usage in works on African languages, ! stands for downstep.

7. To those nouns belong ñší - 'back'; ánɔ̀ - 'mouth', 'edge'; àhɛ́ - 'face', and a few others. Despite the following example:

ó nɛ̀ àbíà tù ɔ̀plɔ́è ñší

'put the stool behind the table'

they have not been considered as postpositions on the ground of their distribution. They can be followed by postpositions described in this paper, e.g.

ó nɛ̀ àbíà mɔ̀ tù áwɪ̀ɛ́ àhɛ́ tɔ̀

'put this stool in front of the house'

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WICHITA: AN UNUSUAL PHONOLOGY SYSTEM

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ABSTRACT

When reexamined in the light of new and additional data, Wichita surface phonology is seen to be somewhat different from that described by Paul L. Garvin in 1950. The three-vowel system has only height contrasts, no front-back dimension; two vowels have voiceless allophones in word-final position; the phonemic consonant system has neither labials nor nasals (which agrees with Garvin's conclusions), but does contain /y/ (which Garvin excluded). No vowel clusters exist, but up to five consonants may occur in sequence. The prosodic system includes a pitch contrast and a three-way length contrast for vowels. Each of these topics is discussed in detail, first to document an unusual phonological system, and secondly to present scholars with additional facts about Wichita.

0. Introduction. In 1950 Paul L. Garvin published an analysis of Wichita[2] phonemics which is a model of classical phonemic description: a precise list of all the allophones of each phoneme, replete with examples for each sound described in every possible environment, and containing a detailed list of occurring consonant and vowel clusters. In the belief that accurate determination of significant sound segments (something close to classical phonemes) must precede further analysis into distinctive features on the one hand, and generative phonological statements on the other, I would like to present the following statement of the Wichita surface phonological system.

My work on this language since 1965[3] has revealed a phonemic system which differs in a few important respects from the system Garvin describes. Unfortunately, I was unable to contact any of his informants, so it is possible that the differences I discuss below between his data and mine are partly due to idiolect variation. Nevertheless, since the variations are not subphonemic, and since my informants represent approximately the same generation as his,[4] I am reluctant to accept this explanation for all the discrepancies.

Whatever the reasons for the differences, I feel it is important to report precisely where the data collected since 1965 suggest an analysis different from the one published in 1950.

1. Summary of Garvin's description.

1.1. Phonemes and allophones. Garvin finds Wichita to have four vowels and nine consonants, plus a phoneme of length and one of primary stress placement. The segmentals are:

i	u	k^w	t	k	ʔ
ɛ	a		c		
			s		
		w	r̃		h

where /r̃/ has two allophones: [n] when geminate, or when initial, or when it stands before a dental consonant in a cluster, [r̆] elsewhere (i.e. intervocalically, finally, or before /h/).

The vowels all show a wide range of variation: /i/ may represent [i, ɪ, e]; /ɛ/ may be [ɛ, ɛ̄ æ]; /a/ may be [ɒ, ɑ, ɔ]; and /u/ ranges from [o] or [ω] to [u]. The more extreme allophones, [e, æ, ɒ, ω] are more frequent before length. Garvin lists very precise environments for each allophone.

1.2. Prosodic Features. Quantity is proven phonemic by minimal pairs (wic 'two', wi:c 'man', etc.) and by observing that its distribution follows no stateable pattern. The long/short contrast is nevertheless said to be neutralized (1) for V_1 in V_1V_2 clusters; (2) for /i/ in a final syllable; and (3) partially before /ʔ/, where V > V: optionally, but V: > V never occurs.

For stress only one minimal pair is offered, and many examples of variable stress are given. Nevertheless, Garvin is convinced of the phonemic, non-predictable status of primary stress.[5] Secondary stress, however, is almost predictable, occurring usually on every second vowel in either direction from the primary stress.

1.3. Clusters. To describe consonant clusters, Garvin first mentions geminate /ss, cc, r̃r̃/, and then ingeniously divides the consonants into three groups: Group I = /k^w, t, k/; Group II = /w, r̃, h, s/; Group III =

/c, ʔ/. Group III functions as Group I when adjacent to /s/, but as Group II otherwise. He says (1950:182)

> Two consonant clusters may consist of two consonants of Group II, or of a consonant of Group I preceded or followed by a consonant of Group II.
>
> Three consonant clusters are of three types: they may have ʔ as initial member and then contain as many as two more consonants of Group II; they may consist of geminate ʔʔ or ss followed by one more consonant; or finally, they may contain consonants of Group I and Group II in alternating order.
>
> Four consonant clusters contain consonants of Groups I and II in alternating order, with s or c as the first member.

Vowel clusters discovered include /ia, ia:, iɛ:, iu:, ɛa, ɛa:, ui, ua, ua:/. The first three of these occurred in all positions, the fourth in medial and final positions only, the next three only in medial position, and the last two only after /w/. If Garvin had had my data, he would also have been able to identify /iɛ/ in kā́:kiɛ́ʔɛskiri:ʔ 'There's nobody!'. But all of these clusters are subject to a different analysis as we shall see shortly.

2. Changes suggested by new and additional data.

2.1. Phonemes and allophones. Wichita (as spoken by all my informants) actually has the following three vowels and ten consonants in its phonemic system:

i	k^w	t	k	ʔ
e		c		
a		s		
	w	r/n	y	h

There are also two phonemes of length, resulting in a three-way length contrast: short vs. long vs. extra-long; and there is a contrast between high pitched and non-high pitched vowels.

In addition to the allophones of the vowels described by Garvin, voiceless [I̥] and [ɒ̥] must be added to the lists for /i/ and /a/ respectively. In his phonetic transcriptions, Garvin sometimes noted a voiceless [ə̥] after a glottal stop, but he claimed this was merely a subphonemic release of the stop. Note, however, the following minimal pairs (the accent indicates high pitch):

[tᵖcʔɒ̥] 'corn silk'

[tᵖcʔI̥] 'It's me.'

[k æʔ æté:ʔI̥] 'It will be mine.'

[k æʔ æté:ʔɒ̥] 'I will come.'

The quality of the voiceless vowels is therefore significant, but voicelessness need not be added to the significant features for vowels: it is conditioned by word-final position. All the word-final vowels (whether short or long) in Garvin's data should have /h/ after them--which he heard and recorded sometimes. This /h/ removes the vowel from word-final position and thus prevents devoicing.

Each of the discrepancies between Garvin's segmental phoneme list and mine will now be discussed in turn.

2.1.1. /u/. Garvin described /u/ as varying from [o] to [u], depending on environment. However, I have never heard any back vowel as high as [u] or [ʊ] in Wichita; [o] is as high as the vowels seem to go. In the article, we find a total of seventeen examples of short /u/, of which eleven occur either before or after /w/. Of the remaining six, three occur in the environments /u:ʔ_ /, /h_k/, and /k_k/ respectively. This would seem to indicate a suspiciously limited distribution for /u/, but one notes examples of all other vowels in similar environments.

Let us first discuss the vowels around /w/. Note e.g. Garvin's examples of wusɛʔɛkʔ 'dog' but wasa: 'cottonwood'. Not one of my informants distinguished the first syllables in these words; the vowel is an extremely low back one, slightly raised and rounded in the environment of /w/. My test pronunciations with [u] or [o] produced only disbelief in these informants. I am therefore forced to conclude that either (1) Garvin sometimes heard a subphonemic distinction when /a/ was in a backing and rounding environment or (2) /u/ and /a/ fell together in the period 1949-1965 for all presently living Wichita speakers. In either case, for the language I studied (Rood 1969) /u/ should be changed to /a/ whenever it is in the neighborhood of /w/.

I suspect something similar for the /h_k/ and /k_k/ environments. The verb with -kuk- is one of the verbs 'to cut', whose root I have recorded numerous times as -kakacki. The form with /h_k/ is given as ti:sahúki: 'this is' (Garvin 1950:181), which is unlike anything I have ever heard with such a meaning. It could be tiʔisah aki:ʔi 'Thus it was' or tiʔisah há:wah aki:ʔi 'So that's the way it was,you see' (há:wah 'again; then' is frequently pronounced [hó:h] in fast speech). This is

a possible variation of a frequent formula used to introduce the conclusion of a narration. But without the expansions I have supplied and the tense change in the gloss, the form Garvin gives is morphologically unanalyzable. The point, however, is that here, too, /u/ is apparently unjustified. It may represent the [ɒ] of aki:ʔi or the [o:] of the reduced form of há:wah, but probably not /u/.

The form hú:ʔus ([hó'os] in the speech of my informants) of Garvin's hú;ʔusk^{w}u 'this time' (1950:181) is the only example of short [o] I have in my data. The word by itself means 'soon; shortly thereafter; recently'. (Just possibly, Garvin's hú:ʔusk^{w}a might be my há:skwah 'when, as soon as', in which case his example is not of my unresolved [o] at all. The [o] of [hó'os] remains a problem nevertheless.)

Technically, of course, the existence of this word makes [o] a phoneme and justifies Garvin's four-vowel system. But a single aberrant word in a language seems to me to cry out for some other analysis; one possible solution will be mentioned below.

2.1.2. /u:, ui, ua/. In contrast with /u/, which except for [hó'os] is really an allophone of /a/, Garvin's examples of /u:/ represent three rather different situations.[7] Some of them are equivalent to /a:/ in the neighborhood of /w/; others are contractions of VwV sequence, while still others are indeed examples of [o:].

Following are the examples Garvin gives with /u:/ which are clearly /a:/ for the speakers I interviewed. The forms are in the order in which they are cited by Garvin, and the initial transcription is his.

(1) wu:ɬi'ihɛ:c 'Gracemont' (village in Caddo County, Okla.)

(2) ɪ̀:kɛ'ɛkiwù:ɾ̃ 'He (was) asked.' (From root -wa:ri 'speak to' --cf. example (4)).

(3) kiú:hwic 'seven' (I have kiyáhwic--see below, section 2.4, item (14)).

(4) aɾ̃ck^{w}u:ɾ̃ 'I told them.' (also from wa:ri 'speak to'; cf. example (2)).

Cases similar to those where Garvin phonemicized the vowel after /w/ as /u/ instead of /a/ are his diphthongs /ua/ and /ua:/. These should be /a:/ instead. His examples are:

(5) wúata:ɾ̃ 'August' (I have instead wá:ta:rh. The meaning is literally 'Buffalo Moon', from wá:h 'moon' and ta:rh/ 'buffalo'.)

(6) tí:ɾ̃iwua: 'then' (My informants say tí:riwa:h, although the more frequently used form is híriwa:h).

The second category of /u:/-sounds in Garvin's discussion contains those which are contracted VwV sequences. This includes the /ui/ diphthongs: since Garvin finds length is insignificant for the first vowel of a cluster, he would write both [o:^{w}I] and[o^{w}i] as /ui/. But in the examples of /ui/which he used which I was able to re-elicit, the /u/ was always long.

Phonetically, both [o:] and [o:^{w}I] can be heard. The former may represent any VwV sequence; the latter will at times be used for Vwi. This contraction may occur anywhere, regardless of word or morpheme boundaries. Usually, in careful speech or with coaxing, the informant can be induced to restore the full VwV sequence--but not always. Garvin's words in which /u:/ or /ui/ should be reanalyzed as VwV are:

(7) kà:si:kà:ki'ɪkú:sak'as 'Sometimes they make some foolish remark'. This is from the root -wasak'a 'speak', with the past tense, indefinite

subject prefixes ʔi-ki. Probably the form is ka:si:ka:kriʔikiwasakʔas, since the -ka:ki- of Garvin's form resembles nothing I have ever seen elsewhere in Wichita morphology, while ka:kiri- 'something' would be expected here. A more literal gloss out of context would be 'sometimes (ka:si:-) something (ka:kiri-) was said.'

(8) á:ku:kʔ 'He said'. The root is -wakʔa 'say': the transcription should be á:kiwakʔa.

(9) tɬ:stûicaks 'woodpecker'. I was unable to elicit a name for this bird, or to confirm this form, but based on the rest of the language, I would expect *ti:stiwicaks.

(10) a:khiʔcûisk^{w} 'He arrived'. a:ki- 'third singular subject past' + hinca or hinci (meaning not recognized) + wis 'arrive at one's own home' + wa 'go, perfective'. The vowel before /w/ is uncertain, but the root has initial /w/.

(11) ka:kiʔiku:kháʔʔiski 'no idea what was going on'. A better gloss would be 'something which was going on'. It is composed of ka:kiri- 'something' + ki- 'past' + -wakhánni 'happen, occur' (cf. (12)) + skih 'imperfective subordinate'. The form is an imperfective past participle (hence the absence of subject markers) with the indefinite pronoun ka:kiri- prefixed. Transcription ka:kirikiwakhánniskih.

(12) hawaʔu:kháʔʔwachis 'they start all over again'. This is another example (cf. (11)) of the root -wakhánni 'happen, occur', this time with another root suffixed and the indefinite subject (tenseless) prefix ʔi-. Hence the preferable transcription há:wah ʔiwakhánnwachis.

It must, of course, be conceded that this treatment of /u:/ as phonemically /VwV/ is not a correctly biunique phonemic solution.

Grammatical or other evidence must be elicited in order to decide what the vowels around /w/ are--although anyone can read, correctly, the resultant transcription.

Furthermore (and here is the third category of /u:/ sounds in Garvin's data) Garvin has listed a few words in which I was unable to elicit anything except [o:], namely:

(13) kű:s 'eagle'

(14) wíu: 'cat' (Thought by informants to be onomatopoetic, an imitation of meow.)

(15) kű:kis 'rabbit' (Once I think I heard one person say kiwakis, but she later denied it.)

(16) hanc'ak'ű:s 'alfalfa'

Not mentioned by Garvin, but also with unresolvable [o:] are:

(17) [kő:ks] 'crazy'

(18) [tő:rikic'] 'young man'[8]

Hence, in contrast with /u/, which occurs in only one word (hő'os), /u:/ occurs rather more often. Nevertheless, because of the frequency with which it can be resolved as VwV, I feel one must exclude it (and its short counterpart) from the inventory of Wichita surface phonemes. Some plausible, if ad hoc solution can be devised for the handful of examples for which correct information is lacking, and even hő'os could be treated as *haw'as or something similar. Note (1) that 'few' may be either [to:'Ic] or [taw'Ic] and (2) that vowel assimilation is frequent when two short vowels are separated by the glottal stop. These two observations make the proposal for 'soon' seem reasonable.

The other alternative, the purely biunique solution, is to restore /u/ and /u:/ to the inventory. Even if one prefers the latter, however,

a statement about the very limited distribution of these two vowels is in order. In addition to the limited environments, we would also have to note that no /u::/ ever occurs, and that almost all words with /u:/ (and, incidentally, hó?os, too) have a high pitch on that vowel, implying a nearby consonant loss in the underlying form (see below, section 2.2).

2.1.3. /y/. Each of the vowel clusters Garvin describes as sequences of front /i/ or /ɛ/ followed by another vowel is said to have a non-phonemic [y] glide between the vowels (1950:182). In fact, this [y] is phonemic, although its distribution is limited to intervocalic position--no examples of [y] in consonant clusters occur.

Definite proof of this without eliciting grammatical evidence comes from the word ka:si:?áre:ye?es?i 'I don't know where; the place is unknown', where [y] between two identical vowels could be 'phonemicized out' only by setting up /e:e/ as a cluster, contrasting with /e::/. Furthermore, there are examples of [y] between phonetically non-front vowels, such as [hir?e:stó:yɒ:s] hir?i:stiwiya:s 'mountain boomer'.

This should be evidence enough even for classical phonemicists. But if we permit grammatical information to enter the picture, the case for /y/ becomes even stronger. A morphophonemic rule

y > h /#__

must be set up to account for the following:

he:c 'fat but tihe:c?i 'It's fat.' (either noun or adjective).

he:c?a 'fire' but tiye:c?i 'It's fire.' (In both examples, the nominal is incorporated in the verb ti?i 'it is'; the -?a of 'fire' is a noun-forming suffix used only in non-incorporated forms.)

Without this rule, we are faced with two /h/'s, one of which 'disappears' (becomes non-phonemic [y]) in incorporated position and one of which remains [h]. The simpler solution is to make [y] phonemic.

Moreover, once we discover that [y] is sometimes significant, we have no choice but to make it phonemic everywhere it occurs: there is no phonetic distinction between [VyV] with grammatically justified /y/ and the same [VyV] where the grammatical evidence is inconclusive, as in niye:s 'child'.

Hence all of Garvin's vowel clusters must be reanalyzed. The /u/-initial clusters were discussed above; the i- and ɛ- initial clusters are not clusters at all, but sequences of /VyV/.

2.2. Prosodic features.

2.2.1. Length. Garvin's data apparently did not include evidence for the distinction in Wichita between long and extra-long vowels. Note the following:

ni:chí::ʔih 'the strong one'

ni::chí::ʔih 'the strong ones'

he:hirʔí:ras 'Let him find you.'

he::hirʔí:ras 'Let him find it for you.'

hárah 'there'

há:rih 'Here it is.' (Said as you hand something over.)

há::rih 'that one'

Moreover, it is not true that length distinctions are regularly neutralized or partially neutralized anywhere. Garvin's environments for variable length, with contrastive pairs as counter-evidence, are resolved as follows:

(1) V: ~ V as first member of vowel clusters. There are no vowel clusters (see 2.1.3) and quantity does vary before /y/:

niye:s 'child'

i:ye:ʔi 'It was the place...'

nareʔeya:ʔih 'his child'

te:ya:h 'cedar'

kiyáta:w 'eight'

hí:ya:kha:rʔa 'tall grass'

(2) i ~ i: in final syllables:

acs tiʔi 'He is good.'

acs ti:ʔi 'They are good.'

(Recall that Garvin considered the final voiceless vowel non-phonemic, so this length contrast is in what for him would be final syllables.)

(3) short vowel lengthened before /ʔ/:

hitacíʔi::s 'We (du. excl.) are looking at it.'

hitací;ʔi;;s 'We (du. incl.) are looking at it.'[9]

2.2.2. Pitch. Furthermore, Garvin analyzed the distinction between high and low pitch as one of primary stress,[10] and then thought he heard primary stress in every word. His examples of 'variable' stress are forms which have all low pitches; it is therefore natural that he would record now one, now another syllable as stressed. But in words with one or more high pitched syllables, Garvin (1950) always marked stress on the high pitches. His minimal pair for stress is really one for pitch:

titeʔe:cʔi 'He is a thief.'

títeʔe:cʔi 'They are thieves.'

This pair illustrates a morphological contrast which is frequently marked by pitch contrast only: the third singular definite will show a low pitch on the vowel; the indefinite (often used for subject plural in intransitive verbs, or for focusing attention on the object and therefore for translating the English passive with transitive verbs) will have high pitch. Note in addition to Garvin's examples:

né'ah ti:'i 'He is no good.'

né'ah tí:'i 'They are no good.'

ka:kintika'acs 'He is eating something.'

ka:kintíka'acs 'He is being eaten by something.'

It is highly probable that at the systematic phonemic level even pitch is insignificant and predictable. Wichita phonological rules are characterized by vowel syncope followed by consonant cluster simplification, usually by eliminating some consonants and replacing them with pitches on preceding or following vowels. Note, e.g., in section 2.1.2 that many of the VwV clusters result not simply in [o:] but in high pitched [ó:]--the pitch marks the loss of the consonant. Cf. also ka:hi:rá:i:c'a from ka:hi:ra:w'i:c'a (see 2.3). Nevertheless, since the details of these processes are still obscure, we must frequently recognize inherent high pitch in some morphemes, and a description of surface phonology cannot avoid discussing phonemic pitch.

2.3. Clusters. All Garvin's vowel clusters have been reanalyzed (see 2.1.2, 2.1.3). The only example I have of two vowels together is the word for 'old woman', ka:hi:rá:i:c'a, which is a contraction from an older pronunciation (volunteered by Mrs. Provost) ka:hi:ra:w'i:c'a. This older pronunciation corresponds to the component parts of the form (as analyzed

by the native speakers) more closely: ka:hi:r- 'woman' + ne?eriya:w?i:c?ah 'one who is wrinkled'. A strict description of surface phonology would have to list this one example of /á:i:/ as the only vowel sequence in the language (it is clearly two syllables, hence not a diphthong); but a systematic phonemic transcription will probably be able to eliminate even this sequence.

Consonant clusters are basically as Garvin described them, except that a few additional environments have been found. This would be expected, of course, with more data. Thus áracc 'I shot it' (phonetically [ˈɒr̆ɒtsʦ]) shows that /cc/ can occur in final position. Similarly, /rh/ occurs initially in rhi:?a 'dough', rhinc?a 'trousers', etc., where /r/ is phonetically voiceless [r̥̆]. This necessitates a new description of the word-initial allophones of Garvin's /r/: they are [n] before a vowel, [r̥̆] elsewhere.

Furthermore, I have found the four-consonant cluster /ncks/ in /tihi?incks 'He is sleeping.' This has the structure $C_{II}C_{II}C_{I}C_{II}$, which is not anticipated in Garvin's description except that it is a sequence of two of his two-consonant cluster types. Likewise, nahi?inckskih 'while sleeping; the one sleeping' contains a five-consonant cluster which follows the pattern described for two-consonant clusters plus one of the ones for three-consonant clusters. So, in effect, Garvin has supplied us with an accurate framework within which all Wichita consonant clusters can be accommodated.

One correction does need to be made in the detailed lists of clusters, however. Garvin posited the cluster -wt- medially in ta:wticaré:s?

'thir-(teen)'. There is a word boundary between the /w/ and /t/ in this example, (tá:w 'three' + ticaré:s'i 'They are lying on top.') and no other examples of /wt/ within a word have occurred. Consequently, -wt- must be removed from the list of possible clusters.

2.4. Additional discrepancies. Garvin's transcriptions thus omit several distinctions which his data led him to believe were absent in the language: /y/, extra-long vowels, final voiceless vowels, and word final /h/; in addition, he writes one sub-phonemic distinction, /u/ for /a/. There are, besides these, a handful of real or apparent differences between some of the examples he cites and the equivalent forms as used by my informants. In this section I will discuss those forms about which I have different information, omitting forms in which Garvin and I agree on the transcription (except for the discrepancies just listed) or forms which I do not recognize and could not re-elicit. The order used is that in which the forms appear in Garvin's paper, and the initial transcription is his, except that r and n are used for /ɾ/, e is written for /ɛ/, and /k^w/ is written kw.

(1) na'a:skíc ~ na'á:skic 'blue' is na'a:skhic, with aspirated [k^h].

(2) ɪarhachàki'iha:s'arih 'When there were many people.' iyarha- 'many, plenty' is followed by -c, an inflection for animate pronoun forms. haki'iha:s'arih is a past subjunctive form of the verb -'ari 'be a number' with 'iha:s 'people' incorporated. A word division occurs between iyarhac and the rest.

(3) ki:ckhárikwitàt 'Village with a Lid on' is the name given to me by several people for Wichita, Kansas. I have also heard it glossed

'round hats' or 'round-topped houses', but I have been unable to analyze it completely. It is a past participle with -khá- 'house' incorporated and -ri- 'patient is plural', but the root -kwitat has not recurred in my data.

(4) kéta:w 'eight'. Phonetically [k^{I}yáta:W], with [I] so short as to be nearly absent. Cf. further discussion at example (14) below.

(5) kinne:sa:khír^{ʔ}i 'Monday'. Literally 'the one which is not his day'; Mrs. Provost says that while this is comprehensible, the 'correct' form in her opinion is kírivaré:sa:khí^{ʔ}nnih 'when it is no longer his day' --cf. 'Sunday' ná::sa:khí^{ʔ}nnih 'When it is his day'. Actually, since these are all verb forms, the tenses, moods and aspects will change with the context; eliciting an isolated name is therefore artificial anyway. Mrs. Provost's form is a present participle with a locative suffix; Garvin's lacks the locative ending and omits the -wa- 'perfective' marker.

(6) nac^{ʔ}isk^{ʔ}ík^{ʔ}ìh 'my hands'. More likely nac^{ʔ}isk^{ʔ}ikih without the third /^{ʔ}/, since 'be plural' is -^{ʔ}iki and possession of body parts is marked by incorporating the name of the possessed object (here -^{ʔ}isk 'hand') in the verb 'be', with possessor as subject (here -c- 'first person').

(7) cí^{ʔ}as 'one' was given me as chí^{ʔ}as, with aspirated [ts^{h}]. Cf. also ci^{ʔ}asskínnti:^{ʔ} 'nine', literally 'one is not there', chí^{ʔ}as kínti:^{ʔ}i.

(8) iskìrie^{ʔ}wá:s 'ten' is, in my data, iskhiri^{ʔ}awá::s.

(9) cir^{ʔ} 'flame' was dictated to me as chir^{ʔ}a--another example of aspirated initial [ts^{h}]. Cf. nos. (7) and (10).

(10) ché:c 'dawn' is better glossed 'morning', since it covers most of the forenoon. 'Dawn' is translated by various forms meaning roughly 'when the sun is just coming up'.

(11) nirhé:ssa:khir? 'Thursday'. Mrs. Provost gives two forms, ni?irhé:ssa:khir? (probably the same as Garvin's) and ní:c?arhi?irhé::sisah, both roughly 'the day they go to stay overnight', referring to going to collect government issued rations which were allotted on Fridays.

(12) ichirisé:cke?ek? 'redbird' is probably the same as my ichirissé:cke?e:k?a, with geminate /ss/ and final long /e:/. Literally it means 'ember bird', with 'ember' a compound of ye:c 'fire' (se:c in this position) and ke?e:k?a 'lump'.

(13) k?i:schakia:s?a:ki:? 'he was a young man' lacks proper word boundaries and is misleadingly glossed. k?i:s 'young, small' and chah 'yet, still' are separate words. kiya- is a prefix meaning ' subject is human' and is followed by has?a 'narrative' and aki:?i 'third singular past tense of verb be'. kiya+has?a is regularly contracted to kiya:s?a in rapid speech. The three words, better glossed 'he was still young', are then k?i:s chah kiya:s?a:ki:?i.

(14) the numbers from six to eight are compounds, a fact which is not apparent in Garvin's transcriptions. kiyah- precedes the morphemes for 'one', 'two', and 'three' respectively to form kíyehes 'six', kiyáhwic 'seven' and kiyáta:w 'eight'.

3.0. Conclusion. The preceding lists and descriptions have been presented solely in the hope of providing scholars with accurate published information about the surface phonology of Wichita. I have presented data which call into question Garvin's report with regard to final voiceless vowels, pitch, length distinctions, and the phonemic status of /y/, as well as with regard to certain specific transcriptions and translations of

individual forms. I have also expressed doubt about /u/ and /u:/, although others may prefer to keep Garvin's system intact.

It should now be apparent that Wichita has an unusual surface phonological system--no phonemic nasals,[11] very few consonants (including no labials),[12] a vowel system which does not use the opposition front vs. back,[13] and a three-way vowel length contrast.[14] The underlying system is still being analyzed, and will be the subject of later reports.

FOOTNOTES

1. I would like to thank my colleagues Luigi Romeo and Allan R. Taylor for reading and commenting on earlier drafts of this paper.

2. Wichita, a Caddoan language, is now spoken by a few dozen people in the vicinity of Anadarko, Oklahoma. My main informant (among several) was Mrs. Bertha Provost, in her early 70's, a fluent speaker of both English and Wichita (although occasionally unable to recall specific Wichita plant and animal names). Mrs. Provost is well respected as a good speaker by other Wichitas, and is in addition a most patient and cooperative person. I shall always be grateful for her help and her friendship.

3. This work began in the summer of 1965 with a grant from the Phillips Fund of the American Philosophical Society, and continued during the academic year 1966-67 with the aid of an ACLS Fellowship for Advanced Graduate Study in Linguistics. Additional short trips to the field in Nov. 1967 and April 1969 were partially financed by research travel grants from the University of Colorado Graduate School. All of this assistance is herewith gratefully acknowledged.

4. See Garvin (1950:179, footnote) where he suggests that there are age dialects.

5. In later work (Garvin and Hill 1962) Garvin recognized the existence of a phonemic pitch distinction, too, but apparently felt that both stress and pitch were significant.

6. Deleted.

7. Plus two which I cannot analyze at all, namely sù:hahi:cá?a 'Let it be for now' and u:há?as 'people'. hi:cá?ah might be the third singular

imperative of a verb form, but if so, it is a root I do not recognize. Likewise, su:hah or recognizable variations of it is unparallelled in my data.

The word for 'people' in my data is iha:s$^{?}$a, which occurs twice in incorporated position in Garvin's paper, viz. iha:sk^{w}ha:c 'Indians' (literally 'red people') and ɬarhachaki$^{?}$iha:s$^{?}$ari (see section 2.4, no. (2)) 'when there were many people'. I am at a loss to explain the discrepancy between incorporated and citation forms in Garvin's records.

8. In this connection, a recording by Marcy (in 1852) reported by Taylor (1963) of this word as two-bear-e-kéts-ah is interesting. This almost certainly indicates that modern [o:] was at that time a -VwV- sequence.

9. Garvin never distinguishes inclusive from exclusive in his glosses in the article, though he does have both forms in Garvin and Hill (1962).

10. Cf. footnote 5 again. Even in these paradigms, though, the three-way length distinction was not marked, resulting in the necessity for re-eliciting all the forms in this collection.

11. Trubetzkoy (1958:160) remarks that he has heard of only one language with but a single nasal (Tlingit) and never mentions the possibility of no nasals. Jakobson, Fant and Halle (1963:40) remark 'the opposition nasal vs. oral is nearly universal in consonant patterns, with isolated exceptions such as Wichita.' Hockett (1955:119) does not list Wichita among the three languages he found without nasals, although the section is supposedly about phonemic systems. A bit later, however (122) he includes Wichita with Hidatsa and possibly Winnebago as among the 'few languages [which] have well defined sonorant systems which cannot be divided into a nasal system and an oral system.'

Charles A. Ferguson (1963) suggests (footnote 8) that Hockett's analysis of Winnebago is unusual and that other analyses treat /m/, /n/ and /r/ as phonemes. In Hidatsa /w, r/ are sometimes [m, n]. Note, however, that the discovery of /y/ in Wichita makes this sonorant system unlike the others Hockett discussed.

Haas (1969:112, footnote) lists seven languages of three families in the northwest coast region which have no nasals, and states 'this is clearly an areal feature.'

12. Hockett (1955:102) discusses obstruent systems of his 2:1:1 type (although an apparent misprint says 2:2:1, the descriptions are of 2:1:1 systems), and states that they are rare, but lists Wichita and Cuicateco as examples. Languages without labials are certainly not unknown: Hockett (1955:119) mentions Tillamook and most Iroquoian languages. If, however, /k^w/ is treated as a labial, the Wichita phonemic (not phonetic) system becomes less unusual (cf. Hockett 1955:102).

Nevertheless, the sonorant system (see note 11) remains strange, and Hockett (108) notes that Wichita is one of less than two dozen languages with no symmetry between its sets of stops and spirants. In this category, it is one of four languages with four obstruents (t c k k^w) and one spirant (s), but is unique with regard to the positions of the stops involved (whether /k^w/ is treated as a labial or not).

13. Trubetzkoy (1958:87-88) discusses 'linear' vowel systems (those with height contrasts only) and mentions three languages of the Caucasus ('das Adyghische, das Abchasische und das Ubychische') which have these systems. All, however, are described as having central norms (ɨ, ə, a) and rounded, unrounded, fronted and backed allophones in various environments.

He concludes 'Somit wären die Vokalphoneme mit phonologisch bestimmten Schallfüllgrad und phonologisch irrelevanten Eigenton eine Eigentümlichkeit der westkaukasischen Sprachen. Ob solche "lineare" Vokalsysteme noch irgendwo anders vorkommen, lässt sich bei dem heutigen Stande der phonologischen Erforschung der Welt nicht sagen.' Hockett (85) mentions only Adyge as having a system of this sort (1 x 3) and cites Trubetzkoy as his source. Hence the Wichita system appears to be unusual indeed, if the absence of /u/ is accepted as presented above.

14. Hockett (1955) does not mention this as a possibility, at least not in section 2431 where it would be expected. Note that some of the alternatives one might consider for phonemic analysis are excluded: /h/ occurs as [h] in pre-consonantal position after long vowels (niyá:hkwih 'tree') and cannot represent length; and combinations such as /aa:/ or /a:a/ are unparallelled by $/V_1V_2/$ sequences of other types. Furthermore, the choice of /aa:/ or /a:a/ in this situation would be completely arbitrary.

Lehiste (1970:45-9) reviews several studies which claimed overlength for vowels in Estonian, Lappish, Hopi, Mixe, and even standard German. Of these, the German has apparently been refuted, the Lappish data are inconclusive, and the Hopi data are scanty, leaving Estonian and Mixe the only well-documented cases. In Estonian, consonants may also be long or overlong, so the domain of the contrast is probably the syllable rather than the vowel. Moreover, the contrast holds only for the first syllable of polysyllabic words. In Mixe, overlong vowels occur only in stressed syllables, and the extra degree of length can be treated as an allophone of /h/.

Cook (1971:165) discusses studies by Sapir, Li, Hoijer and Joël in which Sarcee was described as having three degrees of vowel length. Like Wichita, this seems to be a surface phenomenon, however, resulting from morphophonemic processes. But in Sarcee, tones are part of the problem, too.

The Wichita system of vowel (but not consonant) length of three degrees, occurring in any syllable, and independent of stress or tone thus seems to be very rare, if not necessarily unique, in languages of the world.

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CASE, A DEEPER MATTER

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ABSTRACT

The case markers wa and ga in Japanese are analyzed in a framework similar to Fillmore's case grammar. I argue on both semantic and syntactic grounds that wa- and ga-noun phrases are transformationally derived from conjoined sentences, the markers wa and ga being morphophonemic variants of the conjunctions ba 'if' and wa 'but'. It is shown that the relationships expressed by wa and ga cannot be determined by the underlying semantic relationships alone.

1. Fillmore's case theory (1968a, 1968b) was a serious discussion on the much neglected aspects of grammatical case. Chomsky (1969:8-9) rejected Fillmore's arguments on the ground that they are incorporable in the standard theory of generative grammar and that they depend upon the principles of semantic interpretation. Yet there are instances of case relations which are indefinable in terms of the deep structure case categories or the syntactic relations among sentence constituents alone. The present paper is mainly concerned with two case markers in Japanese, wa and ga, and proposes an alternative for conservative descriptions of them. This analysis is based on the assumption that case relations derive from underlying sentential relations and that case forms, if overtly realized as in Japanese, are transformationally created from the conjunctions which primarily define underlying sentential relations.

2. Fillmore's categorical description of cases was based on the various syntactic relations which hold between the predicate verb and the co-occurring noun phrases in the deep structure of a sentence. Categories being fundamentally a positional notion, the semantic contents of the case relations had to be supplied by lexical features of the verbs and nouns. There was no obvious reason why his categories could not be collapsible into lexical features as well, other than the fact that his categories were somehow considered to represent closer relation to the speaker's underlying conceptual framework. Moreover his grammar contains a given case relation to a single occurrence with respect to one verb, and to one or more noun phrases, by virtue of their selectional restrictions in the same sentence.

Take "John weighs 200 pounds," for example. Its semantic meaning is not that he weighs 200 pounds in a literal sense, but that it is "John's

body which weighs 200 pounds." Yet "John" and "John's body" are not synonymous in the given context, since "John's body" implies his dead body. Even if such semantic details are set aside, and "John's body weighs 200 pounds" is assumed to be the relevant underlying sentence, the two separate case relations between "the body" and "weighs 200 pounds," have to be specified; namely, the possessor-possessed between "John" and "body" and the dative-action, or whatever it may be called, between "the body" and "weighs 200 pounds." A further deep structure analysis may take some sentence such as "body belongs to John" as a base form for "John's body;" then a series of transformations would apply to it prior to the constituent structure assignment to "John weighs 200 pounds" which is relevant to the case relation between "John" and "weighs..." in the Fillmore-type grammar. Then his deep structure cases no longer determine their semantic interpretations.

Subject noun phrases in different cases were also observed by Fillmore as not conjoinable, yet given two different case nouns in appropriate context that restriction seems to dimish, such as

(1) John and his suitcase weigh 200 pounds

or

(2) John and the weather are unpredictable

They are semantically and syntactically correct. Any superficial combination of noun phrases, as long as it does not conflict with the speaker's judgment, seems to be permissible. Needless to say, case relations are basically semantic and cannot be defined in terms of essentially IC relations combined with co-occurrence and selectional restrictions alone.

3. The following sentences in Japanese,

(3) tonari <u>wa</u> onna da "(if it is) the neighbour, it is a woman"

(4) tonari ga onna da "the neighbour (no one else) is a woman"

are superficially alike in that both assert "is a woman" with respect to the topic matter "neighbour." But there is a subtle difference in the way that "neighbour" figures in each sentence. In (3) the topic "neighbour" is mentioned and identified as an individual of mutual acquaintance among the speakers. In (4) "neighbour" is also identified as a topic matter, but there it implies exclusion of anyone and anything else as a competing topic. In closer analogy, suppose the "neighbour" in front of us is to be differentiated from the "neighbour" living behind us; then the "neighbour" in front is mentioned with case ga to eliminate all others from the scope of reference. For example,

(5) usiro de naku, mae ga onna da

"not the neighbour living behind us, but the one living in front of us, is a woman"

Should wa-case subject occur in the same context,

*(5.1) usiro denaku mae wa onna da

the sentence will result in anomaly or mere nonsense.

4. These characteristics of wa and ga may be more clearly exhibited in certain discourse situations, like story-telling. For example, in the passage "Once upon a time there was a horse. The horse...", the first instance of "horse" is always designated by ga. In conjunction with what we have observed as a peculiarly distinguishing function of ga, we may explain that the topic matter of a story must initially be identified from any other thing which the audience may have in mind. Therefore, once "the horse" is dintinguished and introduced as a specified topic of discussion, it is thereafter predictably referred to by anaphoric wa, beginning with the second occurrence. In real life, however,

logic often yields to an unpredictable motivation of a speaker, and a non-initial occurrence of "horse" may be ga-distinguished if the speaker chooses to re-specify it as "horse" to the exclusion of anything else in the story in order to stimulate renewed interest among the audience or for some other reason.

5. Distributionally, ga- and wa-specified subjects are restricted to certain sentence types. Wh-subjects in interrogative sentences are always identified by ga.

(6) dare ga kuru ka "who is coming"

Recall that the semantic sense of ga points out some unpresupposed topic matter to uninitiated conversationalists. Ga in the question sentence is interpretable as "a unique individual who is coming--not anyone else who may come;" indeed, something which is expected to be revealed by a reply cannot possibly be assumed in advance. Therefore the case must be marked by ga.

Likewise, in subordinate sentences the embedded subjects of relative and nominalized sentences, for example, are always associated with ga,

(7) tori ga tobu sora "the sky where the bird flies"

(8) tori ga tobu koto "that the bird flies"

The same explanation applies here. Consider that these embedded subjects must be uniquely distinguished with respect to their antecedent or their nominalizer in a manner as,

(7.1) "the sky where the bird, not anything else, flies"

(8.1) "the fact that the bird, not anything else, flies"

The case wa, therefore, which has no such distinguishing function, cannot occur in these sentence types.

Wa, on the other hand, occurs exclusively in sentences asserting a universal truth,

(9) hi wa asa noboru "the sun rises in the morning"

or announcing the occurrence of a not-unexpected event,

(10) x team wa maketa "x team has lost"

where a sufficient acquaintance with "x team" is presumably shared by the audience and where a subtle knowledge of x team's weaknesses exist, so that "x team" is identified by wa and its failure to win is no surprise.

Suppose we replace these wa with ga, then their interpretations will be quite different.

(9.1) hi ga asa noboru "the sun (which we know, not any other) rises in the morning"

(10.1) x team ga maketa "x team (not to be confused with any other) has lost

In (1.1) it is sensed that the speaker is singling out "the sun" from other things which can rise, such as "the moon," "the stars," "rockets," etc.; thus the "rising of the sun and not the rising of any other thing" is established beyond question.

(10.1), in comparison with (10) can cause general emotion (surprise, shock, disbelief, etc.), as experienced upon learning of a totally unexpected event. The speaker may have in mind some other team which could have lsot, but not "x team." Therefore ga-subject in this context may be interpretable as identifying one thing removed from all other things.

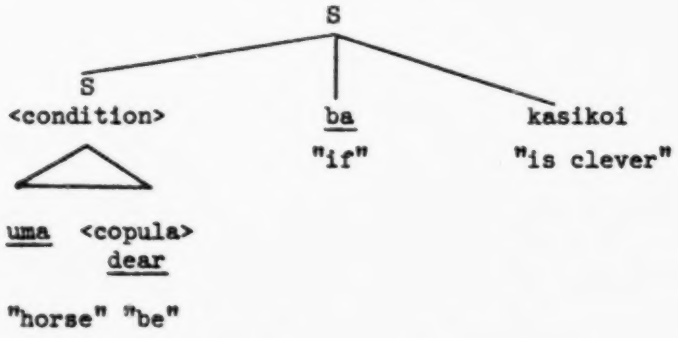
6. To sum up our observation of wa- and ga-occurrences so far, wa seems to distinguish a topic matter with reference to awareness of it upon the part of the speakers, while ga seems to distinguish a topic matter from, among, or in contrast with, other competing topics. As difficult as their formalization may appear to be, these semantic characteristics are definable in grammatical terms.

Compare these sentences.

(11) uma nara ba, kasikoi "if it is a horse it is clever"

(12) uma wa kasikoi "(if it is) a horse (it) is clever"

The meaning of ba-connected sentence is strikingly similar to the sentence with single occurrence of wa-subject. Moreover the segments ba and wa resemble each other in phonetic shape. Suppose ba and wa share a common syntactic source, then a compound sentence with approximately the following description may be considered to underlie (11) and (12).



Omitting all nonessential details, (11) and (12) are derived through the optional deletions of this structure such as

i. uma dear ba kasikoi

ii. uma nara ba kasikoi (11)

iii. uma Ø ba kasikoi

iv. uma wa kasikoi (12)

Sentence (11) emerges as a consequence of stylistic change in base copula form. When the copula is further deleted at stage iii, by virtue of the conjunction ba "if" being brought next to the segment uma "horse," it is

altered to wa morphophonemically, thereby giving rise to sentence (10).

7. The present postulation of a conditional sentence as the deep structure of wa-subject is not based on a frequently unreliable phenomenon of synonymity alone. The underlying conditional sentence contains as its main verb a copula "be." Not only does this copula's function represent the most neutral of all verbal relations, but the Japanese copula is unique in its co-occurrence with caseless nouns. Observe,

i. uma nara ba 'if it is a horse'

*ii. uma ga nara ba

*iii. uma wa nara ba

It has been said that underlying information as to how something is pinpointed and established as a topic, is essential in order to determine the cases of such topic when it emerges as a grammatical form. A topic is assigned ga if the speaker wishes to single it out, whereas it is assigned wa if he assumes presupposed knowledge of it on the part of other participants in the discourse. Only if something is first pinpointed individually and named can any comprehensible assertion be made about it; otherwise no speaker-topic relation exists, and therefore no case is assignable to anything. The copula-caseless-noun relation postulated in the deep structure of wa-subject seems to recall a primitive stage when some particular thing arose as a sentence subject in a general way.

8. There is also a syntactic basis for postulating copula-ba-conditional sentences as underlying wa-subject formation. Despite the fact that wa-subject is originated from ba-conditional sentences, there are curious non-occurrences of wa-subject from any ba-conditional sentences, such as

(13) kimi ga ike ba, boku wa ikanai 'if you go, I will not go'

*(13.1) kimi wa ike ba, boku wa ikanai

(14) uma ga tuyokere ba, usi mo tuyoi 'if a horse is strong, so is a cow'

*(14.1) uma wa tuyokere ba, usi mo tuyoi

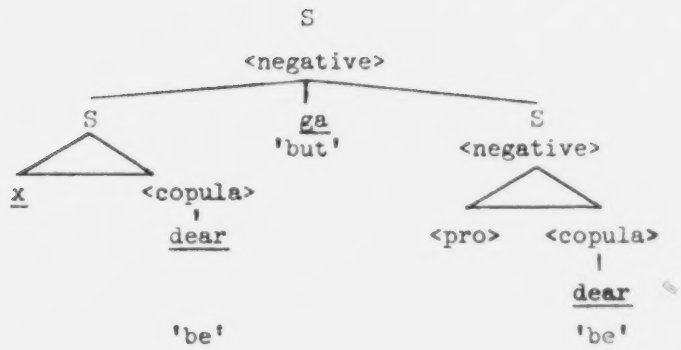
Ga-case subjects occur consistently in these sentences and, furthermore, their predicate verbs are not copulas. Remember, the copula verb in Japanese is under co-occurrence restriction with a caseless noun. Therefore a given ba-conditional sentence, if it contains a copula, must also contain a caseless noun. According to our analysis, the copula verb in this particular context of ba-conditional sentence is deletable and, as a result, a conjunction ba "if" is structurally brought next to the caseless noun, thereby assigning to the noun what is interpretable as the case wa. Mutual exclusion between wa-case subject and non-cupula ba-conditional sentence may be explained as due to the unique association of copula-ba-conditional sentence with wa-subject formation. Interestingly enough, not only can the copula-caseless noun recur in ga-subject formation, but when it does it explains the absence of ga-subject in ga-compound sentences.

9. A quite similar analysis is applicable to ga-subject formation, since there happens to be the homophonous sentence conjunction ga 'but'. Its meaning, when it occurs as a sentence conjunction such as

(15) are wa ii ga, kore wa warui 'that is good but this is bad'

(16) kare wa konai ga boku wa konai 'he does not come but I will not come'

Based on such meaning relation between a ga-connected compound sentence and a ga-specified subject, we may conjecture that a ga-subject may be derivable from a very specific instance of the former having roughly the following description.



It consists of two sentences, one of which contains the aforementioned copula-caseless noun relation. The sense of distinguishing the ga-specified topic matter from all else is symbolized by a pro-form[1] dominated by S with the contextual feature <negative>. The latter will give rise to a conjunction ga 'but' through the feature transfer in appropriate position of diagram above. After the pro-form and copula delections,

i. x dear ga 'is x'

develops. This can be a stylistic variant of ga-subject in Japanese, but by further deleting the copula we obtain a more colloquial form of ga-subject,

ii. uma ga 'horse'

As has been briefly mentioned in section 8, ga-subject never occurs in ga-compound sentences from which the copula verb is absent, such as

(17) kare wa iku ga, boku wa ikanai 'he will go but I will not go'

*(17.1) kare ga iku ga, boku wa ikanai

Now, recall the parallel non-occurrences of wa-subject in ba-conditional sentences. I have explained that this is because of the unique relation of wa-subject and the copula-ba-conditional sentence. We have just seen how ga-case subject develops from a particular ga-compound sentence, i.e. only if it contains a copula as its main verb. Ga-case subject and wa-case subject are thus similar in their derivation and appear to be similarly

constrained in their distributions with respect to ba- and ga-compound sentences. The copula-caseless noun relation is not only generalized as underlying both wa- and ga-case subjects, but is considered to explain their peculiar distributions[2] as well.

10. We have explored how the two kinds of subjects arise from underlying sentences. It was assumed that some correspondence must exist between the semantic content of ba- and ga-compound sentences and wa- and ga-subjects, because the conjunctions of ba 'if' and of ga 'but' seem to preserve their meaning when they are realized as case markers. Their syntactic relatedness is subsequently accounted for at no added cost to the grammar, which already has to account for ba-conditional and ga-compound sentences. Furthermore, the purely synchronic analysis of ba and wa, as a basically single form, coincides with the historical hypothesis that they separated during the period of Proto-Japanese.

11. Among various explanations of wa and ga, traditional Japanese grammarians have described them as two types of nominative particles, with added information as to how they might be semantically interpreted. But little attention has been given to their varied surface distributions, such as their occurrences in isolation or in combination, in many varieties of semantic and syntactic contexts. Observe

(18) uma wa tikara ga tuyoi
'(if it is) a horse, its strength (not anything else) is great'

(19) uma ga tikara wa tuyoi
'a horse (not anything else), (if it is) its strength is great'

(20) uma wa tikara ga tuyoku wa aru
'(if it is) a horse, its strength (not anything else) is in the state of being great'

*(20.1) uma wa tikara ga tuyku ga aru

(21) otooto ga uma ga kowai

'my younger brother (no one else) is afraid of horses (not anything else)'

(22) otooto ga uma wa kowai

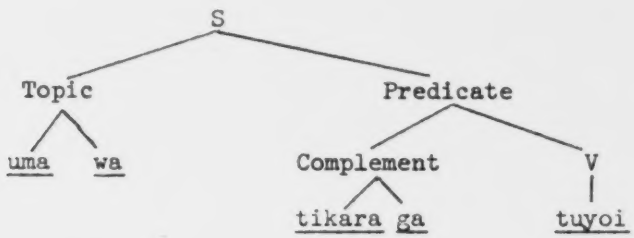
'my younger brother (no one else) is afraid of (if it is) horses'

(23) otooto wa uma wa kowa-garu

'(if it is) my younger brother is afraid of (if it is) horses'

*(23.1) otooto wa uma ga kowa-garu

For even a few examples like these, we may have to explain that (a) wa- and ga-cases occur freely in the subject positions, e.g. (18), (19); (b) wa- and ga-cases occur in the object position, e.g. (21), (22); (c) ga-case cannot occur between the verb stem and the auxiliary verb, e.g. (20); (d) ga-case is under co-occurrence restriction with certain verbs, e.g. (23). More structure-minded grammarians[3] such as Mikami (1959, 1963) have tried to go beyond the traditional analysis of cases by postulating a sentence analysis which will accommodate wa- and ga-subjects in a single sentence. According to their scheme, at least a sentence like (18) can be described as

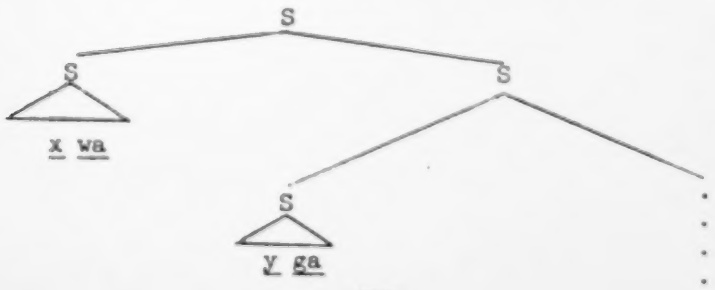


Yet they make no provision for wa- and ga-subject occurrences in other combinations. Since their grammar has no power of permuting any sentence segments, I do not see how sentences like (19) - (23) can be accounted for.

On the other hand, distributionists,[3] among them Bloch (Miller 1970) have categorized the different occurrences of wa- and ga-subjects by

separate labels, making elaborate IA accounts of their surface distributions. In earlier generative grammars[4] wa- and ga-subjects were either introduced as deep structure constituents or inserted in appropriate positions in surface structure. Undoubtedly these grammarians are able to account for complex occurrences of wa- and ga-subjects, but they do so at what in my opinion is an excessive cost to grammar. Accordingly we must deduce that the semantic interpretation of wa- and ga-subjects is determined by the lexical features attributable to case segments wa and ga. In consideration of the complex nature of wa- and ga-subjects which we have previously discussed, however, it is suspected that their interpretations are due to their inherent lexical contents. Moreover there is no basis for believing that such relational terms as case markers should have independent lexical status, since the meaning of relation is determined by interpretation of its context alone. What seems to be common among these explanations is a preoccupation with the categorical and constituent analysis of cases, while little consideration is given to semantics.

In the present analysis of cases, constituent or categorical consideration is irrelevant, since the positions of wa- or ga-case occurrences are determined by the conjoining and embedding relations among the underlying sentences from which they develop. For example, if the highest structure in a sentence gives rise to wa-case segment it is automatically interpreted as the main subject of a sentence. If ga-segment arises from the sentence structure, embedded one degree deeper, it may also be interpreted as some kind of subject.

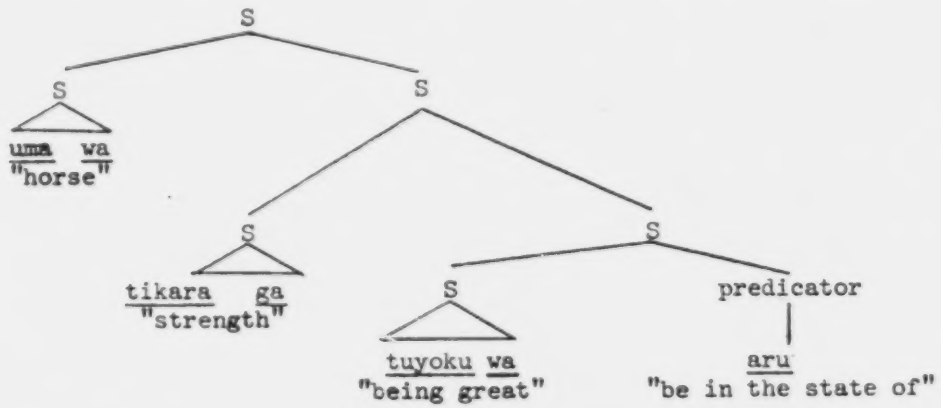


Or if a given predicator happens to be a transitive type verb, its subject, whether wa- or ga-specified, can be superficially called the object.

Wa-occurrence between a verb stem and an auxiliary verb, as in (20), may be analyzed in essentially the same manner.

(20) um wa tikara ga tuyoku wa aru
"(if it is) a horse, its strength (not anything else) is in the state of being great"

The relation between what appears to be the nominalized form of a verb stem tuyoku "being great," and its auxiliary verb aru "to be in the state of," is abstractable as the same relation which holds between wa- or ga-subjects and their predicators. There is no reason why we cannot consider the verb stem tuyoku as a special instance of the subject of an auxiliary verb predicator aru. Then the syntactic relations among the three surface subjects in (20) are



and their relative occurrences seem to depend upon the degree of closeness in their relation to the predicator. In meaning, tikara "strength" is directly related to the verb stem tuyoku "being great," but is indirectly related to the predicator aru "to be in the state of." Therefore it is taken out of the structure which consists of the immediately related terms tuyoku "being great" and aru "to be in the state of," and is assigned the next higher

position. Uma "horse" is even farther removed in semantic relation from the predicator aru "being in the state of;" therefore it is moved to the highest position in the sentence. According to the newly reassinged syntactic positions in this sentence the three terms may be simply considered as three different instances of subject.

12. The distribution of wa and ga cases seems to be a matter of selectional restrictions between the relevant semantic terms. We have observed that ga-case is restricted in its occurrences with certain verbs, while wa-case seems to appear freely elsewhere. The case ga occurs with either so-called intransitive verbs, such as

(24) hito ga kuru "someone is coming"

or pseudo-verbs,

(25) kare wa uma ga kowai "he is afraid of horses"

(26) kare wa uma ga kirai "he has dislike for horses"

These pseudo-verbs, which have traditionally been classified as adjectives and nominal verbs, can be verbalized through formal changes.

(25.1) kare wa uma wa kowa-garu "he fears horses"

(26.1) kare wa uma wa kirau "he dislikes horses"

In (25.1) the adjective has formed a compound with an auxiliary garu, which may inherently select the wa-case segment. The verb in (26.1), on the other hand, has developed through reclassification of itself as a true verb with the loss of its requirement for ga-case segment. Thus, when these pseudo verbs emerge as true verbs of one kind or another, they become similar to transitive verbs in their common selection of the wa-case segment in the object position.

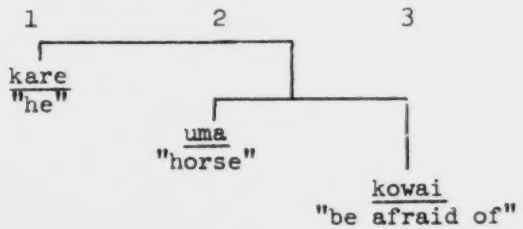
Any term which will eventually be realized as a surface verb must be

specified by such features as <verb>, <transitive>, <intransitive>, <adjective> and so on. If a given verbal has the feature <transitive>, the term which is semantically its object will develop into a ba-conditional sentence first, from which a wa-case object will arise. If it has the feature <intransitive> or <adjective>, then either a wa- or ga-case subject or object will develop from the ba- or ga-compound sentences through the same processes.

13. Let us take (25) as an illustration for retrieving the case formation processes, step by step.

(25) kare wa uma ga kowai
"(if it is) he is afraid of horses (not anything else)"

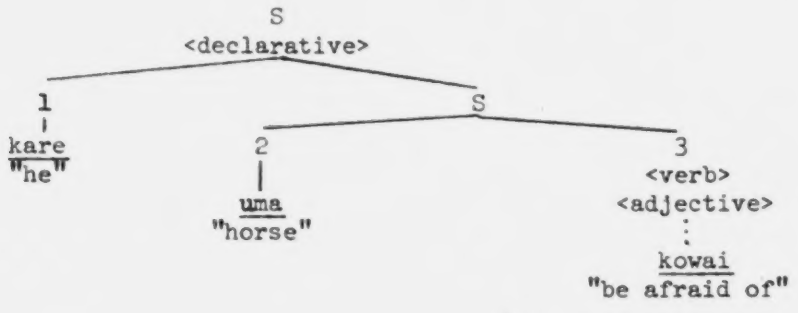
I assume that (25) contains two sets of terms: (kare, uma) "he, horse" and (uma, kowai) "horse, be afraid of" which share the term uma "horse." On account of this, these pairs may form a three-term set (kare, uma, kowai) and a new semantic relation may emerge out of their combination. Supposedly these terms at this stage have already been specified for their semantic properties as well as selectional restrictions. Kare or its underlying term may consist of such features as <agentive>, <animate>, <human>; uma as <agentive>, <animate>, <non-human>, <fearless>; kowai as <verb>, <adjective>, <with animate agent> and so on. Based on these features, at least one semantic relation among these terms is interpretable as,



Term 2, 3 are compatible in meaning, but term 1 is related to 3 by virtue

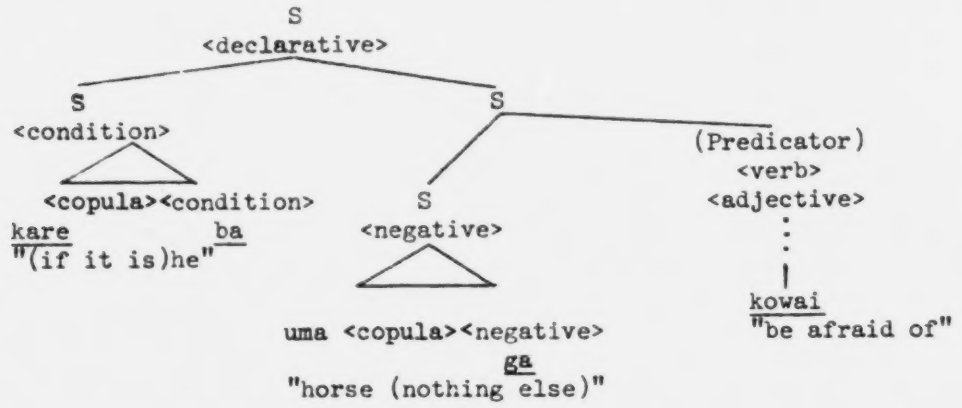
of the underlying co-occurrence of term 1 with term 2. In some intuitive sense, kare "he," in comparison with uma "horse," is hierarchically predominant over the latter with respect to kowai "be afraid of." The relations among these terms may alternatively be defined by the statements that "he" is an agent of "be afraid of horse" and that "horse" is the patient of "be afraid of." This kind of semantic role assignment has been much discussed recently in terms of deep structure categories (Fillmore 1968a, Landendoen 1970:59-84). Since each term in question is presumed to consist of semantic features, I should consider that a relation between particular terms can be defined with reference to their semantic features alone. In fact, case assignment occurs at this stage as a matter of selectional restrictions. The term uma "horse" is not only assigned a patient role but its surface case realization with ga is determined by the features such as <verb, adjective> inherent to the co-occurring term kowai "be afraid of."

The semantic relation which underlies (25) is subsequently reanalyzed into constituent relations and the terms are assigned to their respective positions in a particular sentence frame.

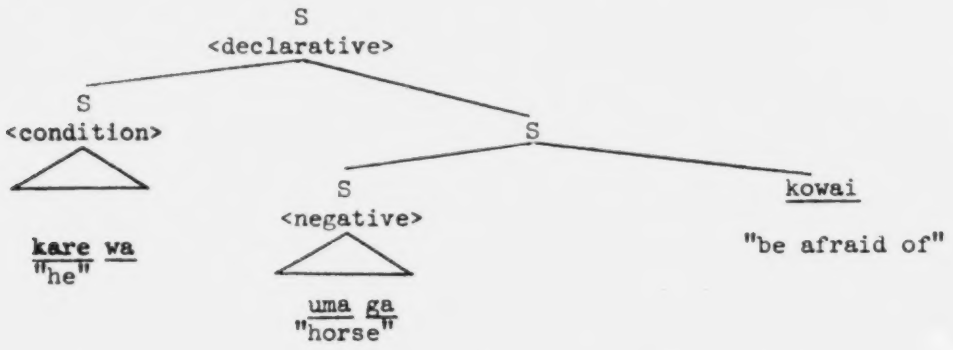


Term 1, due to its remote relation to the term 3, is assigned to the highest position in the sentence; and term 2 is placed in a position lower than term 1 and inside the structure shared with term 3, probably due to the closer semantic relation between term 2 and 3. The term 2 uma "horse,"

because of its co-occurrence with the inherently <adjective> verb kowai "be afraid of" may be subjected to ga-compound sentence expansion, and it will subsequently arise as ga-case object. Term 1 in what may be called the subject position is under no selectional restriction with the verbal term 3, therefore it may be derived from ba-compound sentence. Syntactic development of the sentence (25) from this point onward is roughly as in the following diagram.



After optional deletions and appropriate morphophonemic interpretations, (25) will have approximately the following surfact structure.



Kare wa "he" and uma ga "horse" have been specified in their meanings through various states of their evolution, and are thereby interpretable in every context with which they have been associated with; hence by the time they arise in the surface structure of (25), their semantic meanings and their

respective relations to a predicator term kowai "be afraid of" are fully specified. In the integrated description of cases with consideration of their semantic and syntactic aspects, the interpretation of any case occurrence should be determined by its derivation alone.

14. Fillmore's contention was that the deep structure is stated in terms of semantic role relationships and the given nominative expressions are transformationally brought into the surface case relations (1968a, 1968b). Although being in general agreement with Fillmore, I have shown that the case relations expressed by wa and ga cannot be determined by the underlying semantic relationships alone. The meaning of the case relations as specified by wa and ga appear to be much richer than what can be interpreted by the lexical features and selectional restrictions inherent to the relevant terms, and furthermore, the occurrences of wa and ga do not seem to be positionally constrained in accordance with the constituent relationships in a given sentence. Therefore, I suspect that wa and ga may not arise entirely from the deep semantic structure.

On the basis of some similarity between the inter-constituent and inter-sentence relations which are respectively defined by various cases and conjunctions, I have considered that the cases wa and ga are created transformationally from their cognate conjunctions. I have illustrated a simple mechanism by which the given nominal terms are first assigned to their sentence positions and, depending on their selectional restrictions with respect to their predicator terms, they are subsequently developed as either ba- or ga-compound sentences. As a result of deletions, the compound sentences are eventually reduced to the appropriate forms in which the conjunctions ba "if" and ga "but" are reinterpreted as the case markers wa and ga.

The Fillmore-type semantic analysis of case relations appears still unsound, and reconsideration of the entire processes of case derivation may be needed.

NOTES

1. The range of topics which ga-subject may exclude is not necessarily restricted to what may be represented by pro-form,

(i) uma de naku, usi ga sinda 'not a horse but a cow died'

(ii) kare denaku, boku ga kita 'not he but I came'

where the thing in contrast with ga-subject is explicitly referred to. By simply substituting a full lexical item for the pro-form, any variety of ga-subject sentences can be developed, using basically the same set of grammar rules. For example, i, below, is formed through the following states,

(i.1) uma dear ga usi denaku sinda '(if it is) the horse, not the cow, which died'

(i.2) uma Ø ga usi denaku sinda By optional copula deletion

(i.3) usi denaku uma ga sinda By stylistic permutation

2. Kuno (1970, 1971) has observed that wa-subjects have both "thematic" and "contrastive" interpretations. It seems to me that the latter interpretation is due to the underlying wa-subject occurrence in ga-compound snetence which excludes ga-subject for the reason explained here. "Contrastive" interpretation of wa-subject should rather be attributed to the contexual meaning of ga-compound sentence in which wa-subject occurs.

3. I have classified "certain grammarians," generally, according to what seems to me to be characteristic of their descriptions. Individual grammarians have in varying degrees considered structural, distributional, and semantic aspects of wa and ga, but it is precisely this difference in degree which is the basis for my own classification. By "distributionists," I have grouped together so-called "Kokugogaku"-school grammarians and "Neo-Bloomfieldian" descriptivists (among them Bloch and his students) in the widest sense of that term. "Structuralists" include non-"Kokugogaku"-school linguists such

as Mikami, and those who seem to share similar views with him on wa and ga.

4. Japanese grammars in TG framework have mainly consisted of unpublished doctoral dissertations, none of which, to my knowledge, have studied wa and ga in any substantial scope. However, Kuroda's (1969) recent article, "Remarks on the Notion of Subject with Reference to Words like Also, Even, or Only," can by no means be grouped together with the "earlier generative grammars." A discussion based on his analysis of wa and ga may develop into an independent work, therefore, it is not referred to specifically in this paper.

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